

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of establishing a tunnel from a first interface between a first network and a second network to a second interface between the second network and a third network, the first and third networks operating in accordance with a first transmission protocol and having addresses in accordance with a first addressing convention, and the second network operating in accordance with a second transmission protocol and having addresses in accordance with a second addressing convention, the tunnel being for the transport of messages from a first host on the first network to a second host on the third network, the method comprising ~~the steps of:~~
| sending from the first host an address request message in accordance with the first transmission protocol, referred to herein as a first type address request message, containing the name of the second host;
| upon receipt of the address request message at a name to address conversion system of the third network, returning an address response message in accordance with the first transmission protocol, referred to herein as a first type address response message, and containing the address of the second host in a response address field;
| upon receipt of that first type address response message at the second interface,

converting it to an address response message in accordance with the second transmission protocol, referred to herein as a second type address response message; and

augmenting that converted second type address response message by fields respectively containing the address of the second interface in accordance with the second addressing convention and the address of the second host in accordance with the first addressing convention; and

upon receipt of that augmented that converted second type address response message at the first interface,

converting it to a first type address response message,
retrieving the contents of the augmenting fields,
storing at the first interface a mapping of the retrieved address of the second host and the retrieved address of the second interface for use in encapsulating messages from the first host addressed to the second host,
and

replacing the content of the response address field of the resulting first type address response message by the retrieved address of the second host.

2. (Currently Amended) A method as claimed in claim 1, wherein for establishing a tunnel in the reverse direction for the transport of messages from the second host to the first host, the method further comprises the further steps of:

upon receipt at the first interface of a message from the first host addressed to the second host, encapsulating that received message in accordance with the first mapping; and

upon receipt of the encapsulated message at the second interface,

un-encapsulating that received encapsulated message,

retrieving from the encapsulating header the address of the first interface in accordance with the second addressing convention,

retrieving from the un-encapsulated message the address of the first host in accordance with the first addressing convention, and

storing at the second interface a mapping of the retrieved address of the first host and the retrieved address of the first interface for use in encapsulating messages from the second host addressed to the first host.

3. (Currently Amended) A method as claimed in claim 1, including setting a time to live for a said stored mapping, and rendering that stored mapping unuseable upon the expiry of the time to life.

4. (Currently Amended) A method as claimed in claim 3, wherein the rendering step deletes that stored mapping.

5. (Currently Amended) A method of sending packets from a first host on a first network via a second network to a second host on a third network, the first and third networks operating in accordance with a first transmission protocol and having addresses in accordance with a first addressing convention, and the second network operating in accordance with a second transmission protocol and having addresses in accordance with a second addressing convention, comprising the steps of:

establishing a tunnel from a first interface between the first network and the second network to a second interface between the second network and the third network in accordance with the method of claim 1;

upon receipt by the first host of the resulting first type address response message from the first interface, retrieving the content of the response address field;

generating one or more packets for transmission having a header including source and destination address fields, the source address field containing the address of the first host, and the destination address field containing the retrieved content of the response address field;

sending the or each generated packet to the first interface;

for the or each said generated packet received by the first interface, accessing the stored mappings in accordance with the destination address of the received generated packet,

retrieving the stored interface address of the mapping whose retrieved host address matches the destination address of the received generated packet,

generating an encapsulated packet having a payload formed by the received generated packet, and having a header including source and destination address fields, the source address field containing the address of the first interface, and the destination address field containing the retrieved interface network address,

sending the encapsulated packet to the second interface; and
for the or each encapsulated packet received by the second interface, un-
encapsulating the received encapsulated packet to recover the original generated packet
forming its payload, and

sending that recovered packet to the second host.

6. (Currently Amended) A method as claimed in claim 5, including the step
of storing the retrieved content in association with the name of the second host.

7. (Currently Amended) A method as claimed in claim 6, including the steps
of offsetting a time to live for the stored retrieved content, and rendering that stored
retrieved content unuseable upon the expiry of the time to live.

8. (Currently Amended) A method as claimed in claim 7, wherein the
rendering step deletes the stored retrieved content.

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9-10. Cancelled.